Exercise 6.13.1

What is the expression for the signal arising from a digital transmitter sending the bit stream b (n), n = {..., −1, 0, 1,... } using the signal set s_0 (t), s_1 (t), each signal of which has duration T?

6.14 Binary Phase Shift Keying

A commonly used example of a signal set consists of pulses that are negatives of each other (Figure 6.7).

$$s_0(t) = AP_T(t)$$
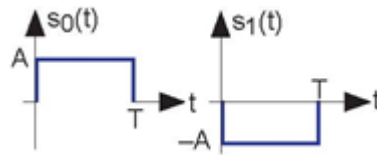$$s_1(t) = -(Ap_T(t))$$

(6.38)

Figure 6.7

Here, we have a baseband signal set suitable for wireline transmission. The entire bit stream b (*n*) is represented by a sequence of these signals. Mathematically, the transmitted signal has the form

$$x(t) = \sum_n \left((-1)^{b(n)} Ap_T(t - nT)\right)$$

(6.39)

and graphically Figure 6.8 shows what a typical transmitted signal might be.